

REMARKS

Claims 1-18 and 20 are currently pending, with claims 11-18 and 20 under examination. Claims 1-10 are withdrawn.

In the Final Office Action identified above,¹ the Examiner:

- a) rejected claims 11 and 20 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki et al. (U.S. Patent No. 6,953, 388, "Shimagaki") in view of Burke (U.S. Patent Application Publication No. 2002/0098789, "Burke") and further in view of Katagiri et al. (U.S. Patent Application Publication No. 2003/0077906 A1, "Katagiri");
- b) rejected claims 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke and Katagiri, and further in view of You et al. (U.S. Patent No. 6,663,787) ("You"); and
- c) rejected claims 17 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke and Katagiri, and further in view of Jang et al. (U.S. Patent No. 5,702,977) ("Jang").

Applicants respectfully traverse the Examiner's rejection of claims 11 and 20 under 35 U.S.C. § 103(a) over Shimagaki in view of Burke and Katagiri, because a *prima facie* case of obviousness has not been established.

To establish a *prima facie* case of obviousness, the prior art reference (separately or in combination) must teach or suggest all the claim limitations. See M.P.E.P. § 2142, 8th Ed., Rev. 5 (August 2006). "[I]n formulating a rejection under 35

¹ The Final Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Final Office Action.

U.S.C. § 103(a) based upon a combination of prior art elements, it remains necessary to identify the reason why a person of ordinary skill in the art would have combined the prior art elements in the manner claimed.” *USPTO Memorandum* from Margaret A. Focarino, Deputy Commissioner for Patent Operations, May 3, 2007, p. 2. “[T]he analysis supporting a rejection ... should be made explicit” and it is “important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the [prior art] elements in the manner claimed.” *Id.* (citing *KSR Int’l Co. v. Teleflex, Inc.*, No. 04-1350 (U.S. Apr. 30, 2007)).

Here, a *prima facie* case of obviousness has not been established because, among other things, Shimagaki, Burke, and Katagiri, taken individually or in combination, fail to teach or suggest each and every element recited in independent claim 11. In particular, the cited references fail to teach or suggest at least the claimed polishing treatment using “a polishing pad ... having a compression elastic modulus ranging from 300 to 600 MPa and comprising a matrix, and cells,” as recited in claim 11.

The Examiner admitted that the combination of Shimagaki and Burke does not teach the compression elastic modulus of the pad. See Final Office Action at page 3. Indeed, Shimagaki and Burke are silent as to any compression elastic modulus of a polishing pad. The Examiner then alleges that “Katagiri teaches a polishing pad having a compression elastic modulus of between 300 and 600 Mpa (paragraph 0017),” and “it would have been obvious to one of ordinary skill in the art to use and eluting polishing pad having a compression elastic modulus of 500 Mpa.” Applicants respectfully disagree. The grindstone of Katagiri does not constitute or suggest a CMP polishing

pad, and one of ordinary skill in the art would not be motivated to combine the teaching of a grindstone of Katagiri with the polishing pads taught by Shimagaki and Burke.

Katagiri discloses that a grindstone comprises grindstone segments 41 (not labeled) which appear to be radial segments, each of which comprise polygonal segments 20, fixedly adhered on a base plate 21. See Katagiri, Fig. 1 and paragraph [0053]. Katagiri also teaches that the grindstone segment 41 is apt to be chipped during operation and, therefore, the polygonal segments 20 are arranged coaxially so that a corner of each segment 20 is not coincident with a corner of another segment 20 in order to protect the corners, which are prone to chipping. See paragraph [0053]. Therefore, the structure and behavior of a grindstone as described in Katagiri is entirely different from a CMP polishing pad.

Furthermore, although the grindstone has a compressive elastic modulus in a range from 200 MPa to 3 GPa, Katagiri clearly differentiates a grindstone from a polishing pad. For example, Katagiri teaches away from a compressive elastic modulus smaller than 200 MPa, stating that “[t]he compressive elastic [modulus] that is smaller than 200 MPa is not so different from that of CMP polishing pad.” Katagiri at paragraph [0017].

Accordingly, no motivation is found in any of the references to combine Katagiri with Shimagaki and Burke because Katagiri does not teach or suggest a polishing pad comprising a matrix containing particles that are dissolved to create interstices or texture on at least the portion of the pad that contacts the wafer. Instead, Katagiri teaches a grindstone, and distinguishes its grindstone from a CMP polishing pad, as discussed above. At least for this reason, Applicants submit that no *prima facie* case of

obviousness of independent claim 11 has been established because the references do not teach or suggest at least the claimed “polishing pad having a compression elastic modulus ranging from 300 to 600 MPa.”

Moreover, in the “Response to Arguments” section, the Examiner asserted that “[a]s the applicant note [Katagiri] teaches a polishing pad made of a resin, a matrix. Said pad comprise cells containing particles.” Final Office Action at page 7. Applicants are unable to identify such a statement in the Response filed May 23, 2007, indicating that Katagiri teaches a polishing pad made of a resin and a matrix. On the contrary, Applicants stated that Katagiri’s grindstone does not contain any matrix, cells, and/or recessed portion-forming material, but rather contains abrasive fixed with the resin. See page 8 of the Response.

For at least the above reasons, no *prima facie* case of obviousness has been established regarding claim 11. Claim 20, which depends from claim 11, is allowable at least due to its dependence. The Examiner should therefore withdraw the rejection of claims 11 and 20 under 35 U.S.C. § 103(a).

Applicants respectfully traverse the Examiner’s rejection of claims 12-16 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke in view of Katagiri, and further in view of You, and the rejection of claims 17 and 18 under 35 U.S.C. § 103(a) as being unpatentable over Shimagaki in view of Burke in view of Katagiri, and further in view of Jang. The Examiner relies on the disclosure of You only to teach elements recited in dependent claims 12-16. See Final Office Action at pages 5-6. Similarly, the Examiner applies Jang to teach an insulating film buried in a trench. See Final Office Action at pages 6-7. However, even assuming such teachings are

present in these references, the cited references, individually or in combination, fail to establish a *prima facie* case of obviousness regarding independent claim 11. The deficiencies of the combination of Shimagaki, Burke, and Katagiri are explained above. In addition, both You and Jang fail to teach or suggest the claimed "said polishing pad having a compression elastic modulus ranging from 300 to 600 MPa," as recited in claim 11. In fact, both references are entirely silent as to any polishing method, and thus necessarily fail to teach the claimed compression elastic modulus range of the polishing pad.

Thus, no *prima facie* case of obviousness has been established, and claims 12-18 are allowable at least due to their dependence. The Examiner should therefore withdraw the rejections of claims 12-18 under 35 U.S.C. § 103(a).


In view of the foregoing, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

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By: 
Selah C. Park
Reg. No. 57,127